

CLAIMS:

1. Apparatus for making flexible laminated material either perforated or not perforated from web material, said apparatus including frame means having a laminated material take off mechanism associated therewith, and web material
5 dispensing means for dispensing at least one first flexible plastic material film web in a first direction, wrapping means for wrapping at least one second flexible plastic material film web around the laminated material take off mechanism of said frame means to form said flexible laminated material with said first and second film webs being at least partially adhered to one another as said take off
10 mechanism progressively removes said laminated material from the frame means.
2. Apparatus according to claim 1 wherein said web material wrapping means moves about said laminated material take off mechanism while wrapping said at least one first film web around said laminated material take off mechanism.
- 15 3. Apparatus according to claim 1 wherein said web material wrapping means remains in a stationary position and at least said laminated material take off means of said frame means rotates while wrapping said at least one first plastic film there around.
4. Apparatus according to any one of claims 1 to 3 wherein said take off
20 mechanism is disposed so as to remove said flexible laminated material from the frame means in a horizontal direction.
5. Apparatus according to any one of claims 1 to 3 wherein said take off mechanism is disposed so as to remove said flexible laminated material from the frame means in an upright direction.
- 25 6. Apparatus according to claim 5 wherein the flexible laminated material is removed from said frame means in either a downwards direction or an upwards direction.

7. Apparatus according to any one of claims 1 to 6 wherein said apparatus includes movement means and drive means to drive said movement means whereby said apparatus can be moved in a desired direction while forming said laminated material.

5 8. Apparatus according to any one of claims 1 to 7 wherein said web material dispensing means dispenses said at least one first film web in a direction parallel to a movement direction imparted to said flexible laminated material by said laminated material take off mechanism.

9. Apparatus according to claim 8 wherein said flexible laminated material is
10 formed as a net or mesh material with a plurality of openings between the web material.

10. Apparatus according to any one of claims 1 to 9 wherein said web material wrapping means includes supply means for dispensing at least two said second film webs.

15 11. Apparatus according to any one of claims 1 to 10 wherein a speed of wrapping the or each said second film web(s) by said wrapping means is related to the speed of removal of said flexible laminated material by said laminated material take off mechanism whereby the or each said second film web(s) supplied by said wrapping means is spirally wound in overlapping relationship in
20 said flexible laminated material.

12. Apparatus according to claim 11 further including second web wrapping means arranged to apply further web material cross-wise relative to the second film web(s) applied by the first mentioned material web wrapping means.

13. Apparatus according to any one of claims 1 to 12 wherein the laminated
25 material take off mechanism includes at least two spaced endless conveyors having outer conveyor runs travelling in the same direction and speed about

which the web material wrapping means wraps said at least one second plastic film to form said flexible laminated material.

14. Apparatus according to claim 13 further including press means to press at least an outer layer of said second plastic film web applied by said web material wrapping means against a previously applied layer.

15. Apparatus according to claim 8 wherein the web material dispensing means is configured to dispense a plurality of separate lengths of said first flexible plastic film webs, at least some of said separate lengths being transversely spaced from one another.

16. Apparatus according to claim 8 wherein the web material dispensing means is configured to dispense a plurality of separate lengths of said first flexible plastic film webs in overlapping relation.

17. Apparatus according to claim 15 wherein the web material wrapping means wraps at least one said second plastic film web about said laminated material take off mechanism to form spiral windings spaced longitudinally from one another and transversely crossing said separate lengths of the first plastic film webs.

18. Apparatus according to claim 1 wherein at least two separate lengths of said second plastic film webs are wrapped in overlapping spiral windings with at least one said first plastic film web dispensed in the longitudinal direction being disposed between said at least two separate lengths of said second plastic film webs.

19. Apparatus according to claim 1 wherein the web material dispensing means delivers at least two separate lengths of said first plastic film webs in overlapping relation whereby a said spiral winding of said second plastic film web is located between said at least two lengths of said overlapping longitudinally extending first plastic film web.

20. Apparatus according to claim 13 or claim 14 wherein the web material wrapping means includes a first supply means for supplying the second said plastic film about said outer conveyor runs and at least one further supply means for supplying at least one further said second plastic film, the first supply means
5 wrapping said first plastic film at a tension level different to that of the or at least one said second plastic film(s).

21. Apparatus according to any one of claims 1 to 20 wherein the web material dispensing means and the web material wrapping means supply the first plastic material film web and the second plastic material film web at differing tension
10 levels.

22. Apparatus according to any one of claims 1 to 21 wherein heat sealing means is provided to heat seal all layers of the flexible laminate material at at least longitudinally spaced positions along said laminated material.

23. Apparatus according to claim 22 wherein the heat sealing means heat
15 seals all said layers of the flexible laminated material along at least one longitudinally extending seal line.

24. Apparatus according to claim 13 or claim 14 further including adjustment means to transversely adjust distance between the outer conveyor runs of said at least two spaced conveyors.

20 25. Apparatus according to claim 23 wherein said heat sealing means is adapted to form multiple transversely spaced said longitudinally extending seal lines.

26. Apparatus according to claim 23 or claim 25 further including cutting means to cut said laminated material longitudinally along heat sealed regions
25 whereby each longitudinal edge region of the laminated material so cut is heat sealed.

27. Apparatus according to any one of claims 1 to 25 further including cutting means to cut said material in a longitudinal direction.

28. Apparatus according to any one of claims 1 to 27 further including adhesive application means to apply adhesive material to at least one said
5 second flexible plastic material film web prior to wrapping said web material on said frame means.

29. Apparatus according to any one of claims 1 to 28 further including adhesive application means to apply adhesive material to said web material applied over the laminated material take off means prior to wrapping a said
10 second plastic material film web over said adhesive material.

30. A method of making flexible laminated material from web material including dispensing at least one first flexible plastics material film web in a first direction and wrapping at least one second flexible plastic material film web in a plurality of spiral windings about a frame means to form said flexible laminated material by
15 overlaying at least portions of the first film web with the second film web with said first and second film webs being at least partially adhered to one another while simultaneously moving the laminated material on said frame means towards a discharge zone from said frame means.

31. A method according to claim 30 wherein said first direction is in the same
20 direction as movement of the laminated material towards said discharge zone.

32. A method according to claim 30 or claim 31 wherein said frame means includes at least two conveyors, the web material being wrapped onto said conveyors and conveyed thereby from said frame means.

33. A method according to any one of claims 30 to 32 wherein at least two said
25 second plastic film webs are simultaneously wrapped about said frame means.

34. A method according to claim 33 wherein said at least two said second plastic film webs are self adhesive whereby they will adhere to a previously wrapped layer.

35. A method according to any one of claims 30 to 34 wherein flexible reinforcing web material forms at least one of said web material used to make the flexible laminated material.

36. A method according to claim 35 wherein the reinforcing web material is of a mesh construction.

37. A method according to any one of claims 30 to 36 wherein the or each said first and second film webs are a low density polyethylene film pre-stretched to beyond its yield point to increase its length and decrease its thickness.

38. A method according to any one of claims 30 to 37 wherein adhesive is applied between layers of said web material wrapped on said frame means.

39. A method according to any one of claims 30 to 37 wherein layers of said flexible laminated material are heat sealed together at at least longitudinally spaced locations along at least one longitudinally extending seal line.

40. A method according to claim 39 wherein a plurality of said seal lines are formed circumferentially spaced about said flexible laminated material.

41. A method according to any one of claims 30 to 40 wherein cutting means is provided to cut the flexible laminated material along at least one longitudinally extending cut line to thereby form a single layer of said flexible laminated material.

42. A method according to claim 41 wherein layers of each cut edge zone of the flexible laminated material are heat sealed together.

43. A method of lining a canal or the like including making tubular liner material formed by spirally wound layers of at least one plastic film web with said layers adhered to one another, and laying said liner material along said canal.

44. A method according to claim 43 wherein said tubular liner material is positioned in said canal as a double thickness.

45. A method according to claim 44 wherein water flow in said canal is arranged to flow within the tubular liner material whereby a portion of said liner material overlies said water flow.

46. A method according to claim 43 wherein said tubular liner material is cut along a longitudinally extending line whereby said liner material is positioned in said canal as a single thickness.

47. A method according to any one of claims 43 to 46 wherein said tubular liner material is formed in situ and laid directly into said canal.

48. A method of lining an earth formed water retaining means including making tubular liner material formed by spirally wound layers of at least one plastic film web with said layers adhered to one another, and laying said liner material in said water retaining means.

49. A method according to claim 48 wherein said tubular liner material is cut to form a single sheet prior to being laid in said water retaining means.

50. A net or mesh material formed from a plurality of longitudinally disposed and laterally spaced webs interconnected by at least one spirally wound web formed into longitudinally spaced windings transversely disposed to said longitudinally disposed webs.

51. A net or mesh material according to claim 50 wherein a tubular form of said net or mesh material is cut longitudinally to form at least one flat sheet of said net or mesh material.

52. A dam, pond or canal liner formed by a liner material being spirally wound in overlapping layers of at least one plastic film web with said layers being adhered to one another.

53. A dam, pond or canal liner according to claim 52 wherein a tubular form of said liner is cut longitudinally to form at least one flat sheet.

54. A dam, pond or canal liner according to claim 52 or claim 53 further including one or more webs extending in a longitudinal direction transverse to said spirally wound overlapping layers.

55. A dam, pond or canal liner according to claim 54 wherein a plurality of said webs extending in the longitudinal direction are provided spaced from one another.

56. A dam, pond or canal liner according to claim 54 wherein a plurality of said webs extending in the longitudinal direction are provided and overlap one another.

57. A laminate film material, the laminate film material being formed from at least one plastic material web wound in overlapping spiral layers with said layers being adhered to one another, the thus formed tubular structure being cut longitudinally to form at least one flat sheet.

58. A laminate film material according to claim 55 further including at least one longitudinally extending plastic material web positioned such that the or each said spirally wound layer is disposed transverse to the or each said longitudinally extending plastic material web.

59. A flexible laminated material formed by at least one first flexible plastic material film web extending in a first direction and at least one second flexible plastic material film web spirally wound in a plurality of windings transversely crossing said at least one first flexible plastic material film web with each of said

first and second film webs being at least partially adhered to one another to form said flexible laminated material.

60. A flexible laminated material according to claim 59 wherein a plurality of said first film webs are provided.

5 61. A flexible laminated material according to claim 59 or claim 60 wherein a plurality of said second film webs are provided.

62. A flexible laminated material according to claim 59 or claim 60 wherein the or each of said first film web(s) extend in a longitudinal direction of the flexible laminated material.

10 63. A flexible laminated material according to claim 59 wherein said first film web is spirally wound in a plurality of windings.

64. A laminated material according to any one of claims 59 to 61 wherein a tubular form of said laminate film is cut longitudinally to form at least one flat sheet.

15 65. A laminated film material being formed from at least one plastic material web wound in overlapping spiral layers with said layers being adhered to one another to form a tubular structure, the thus formed tubular structure being cut longitudinally to form at least one flat sheet.

20 66. A laminated material according to claim 65 further including at least one internal pocket adapted to receive a flowable substance to act as a weight.

67. A cover arrangement formed from a laminated film material, the laminated film material being formed from at least one plastic material web wound in overlapping spiral layers with said layers being adhered to one another, said cover arrangement further including at least one internal pocket adapted to
25 receive a flowable substance to act as a weight.